



## Ecosystem Management Program BULLETIN



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**RARE FIND IN THE NORTHERN KO'OLAU MOUNTAINS OF O'AHU.** During the week of May 16<sup>th</sup>, O'ahu Army Natural Resources staff accompanied Natural Heritage Botanist Joel Lau to the Northern Ko'olau mountains in search of the rare and endangered fern, *Pteris lidgatei*. The crew was dropped off on the summit by private helicopter near the old Kahuku Cabin site, and surveying began in a drainage on the leeward side of the Ko'olau. Around mid day the team found their target. The fern was growing on a steep mossy wall amongst other native ferns and several rare *Cyanea koolauensis* plants.



Endangered fern, *Pteris lidgatei*

Other notable rare plant species found during the survey trip include: *Cyanea koolauensis*, *Cyanea calycina*, *Cyanea dengenrii*, *Chamasyce rockii* ('akoko), *Hesperomania arborescens*, *Gardenia manii*, *Phyllostegia hirsuta*, and *Huperzia nuttans*.



Joel Lau with the *Pteris lidgatei*

*P. lidgatei* is found in the Ko'olau Mountains of O'ahu, on Moloka'i and on West Maui. Only 15 plants are known on Oahu, and just over 30 on Maui. It is typically found in wet forest areas on steep rocky embankments that are constantly moist, such as steep stream banks, and on the nearly vertical banks adjacent to waterfalls. Some of the major threats to this species are the many invasive alien plants invading the species' habitats, such as *Clidemia hirta* (Koster's curse) and *Psidium cattelium* (strawberry guava). Feral pigs may also contribute to habitat degradation.



Will Weaver with Endangered *Cyanea calycina*, growing out of streambank.



## USAG-HI CULTURAL RESOURCE PROGRAM TO BEGIN ARCHAEOLOGICAL COLLECTIONS MANAGEMENT REPOSITORY IMPROVEMENTS:

The Cultural Resources Management (CRM) Program under direction of Dr. Laurie Lucking, is taking steps to improve, upgrade and reorganize its archaeological collections. The CRM is constantly striving to meet the Secretary of Interior's Standards and Guidelines for Archeological and Historic Preservation. In 1990, government-wide regulations for the curation and care of federal archaeological collections required by the National Historic Preservation Act, the Reservoir Salvage Act, and Archaeological Resources Protection Act were issued as "Curation of Federally Owned and Administered Archaeological Collections" (36 CFR 79) to insure appropriate custodianship of federal collections. For the past few years, the CRM program has made a concerted effort to regain possession of all documents and artifacts associated with former archaeological surveys performed on Army controlled lands. At Pohakuloa Training Area such materials are housed in a curation facility and are currently being accessioned.



Flake Tool, various cutting uses

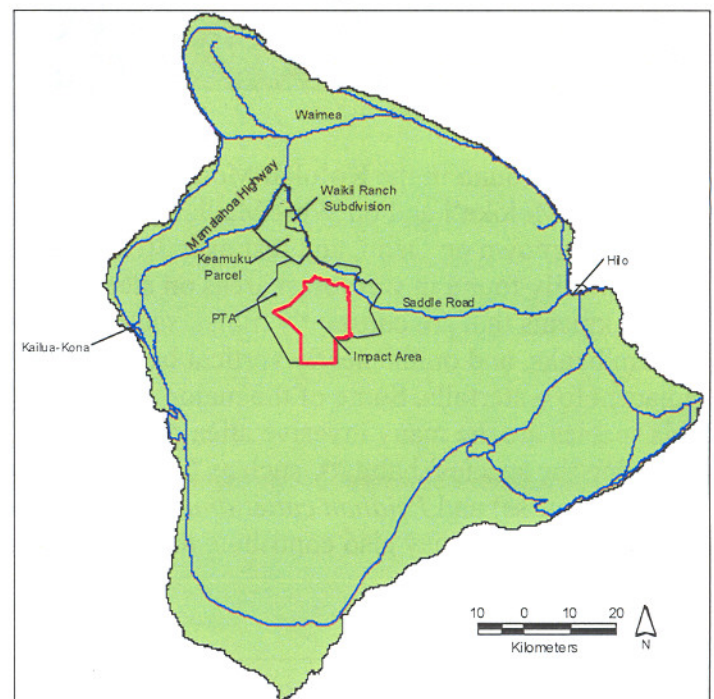
To facilitate reaching this goal on Oahu, the CRM has established a Museum Internship Program with the University of Hawaii, Manoa Museum Studies Program. This fall Semester, a student intern will assist the CRM's seven person team as a Museum Technician. The Intern will develop a full inventory of archaeological collections acquired from numerous construction and development projects on Army lands on Oahu over the past forty years. Database improvements will be made, collections will be inspected for curation status, condition and volume,

and estimates will be made for upgrades to curation storage facility needs. Coordination with curation specialists and university advisors will assist in development of a solid long range Preservation Plan and give USAG-HI the knowledge needed to properly curate fragile and important collections. Holdings to be inventoried and assessed include Native Hawaiian artifacts, historic and WWII artifacts, photo collections, historic documentation and maps, archaeological documents and samples containing pollen and charcoal.



Mortar, grinding stone

**ARMY SURVEYS PU'US IN KE'ĀMUKU** The U.S. Army recently purchased the 9,180 hectare (22,675 acre) Ke'āmuku parcel from the Richard



Location of the Ke'āmuku parcel



Smart Trust (Parker Ranch). The parcel lies between Pōhakuloa Training Area (PTA), Waiki'i Ranch, the South Kohala/North Kona district boundary, Saddle Road, and the Māmalahoa Highway. Prior to the purchase, the area was primarily used as cattle grazing pasture, however, several years ago some of the pu'u (cinder cones) were discovered to be rare plant habitat.

Shortly after the Army gained this new land, PTA Natural Resource Staff headed out to survey two of the pu'u on the new parcel: Pu'u Pāpapa and Pu'u Nohona o Hae. Pu'u Nohona o Hae has been fenced from grazing since the 1980's, while Pu'u Pāpapa has not. Both pu'u contain native and rare species of plants, but Pu'u Nohona o Hae has greater plant diversity and a more stable environment. Cattle grazing on Pu'u Pāpapa has caused areas of severe erosion and native plant browse. Initial observations by PTA Natural Resource Staff also found Pu'u Pāpapa to have a higher density of invasive weeds, such as *Pennisetum setaceum* (fountain grass) and *Salsola kali* (Russian thistle).



*Isodendrion hosakae*, a rare woody member of the Violaceae family

During surveys to confirm the existence of rare plants, PTA Natural Resource Staff marked populations of the following endangered species:

*Isodendrion hosakae*, *Lipochaeta venosa*, and *Vigna o-wahuensis*.

Since Pu'u Pāpapa and Pu'u Nohona o Hae are both valuable reservoirs for Hawaiian plants, protecting them from grazing and weed encroachment are priority management strategies proposed by the PTA Natural Resource Staff. These actions will help to sustain existing plant populations and make the

habitat suitable for future outplanting projects. The potential for stabilizing native and rare plants on the Ke'āmuku parcel is very exciting!



Can you spot the endangered *Vigna o-wahuensis* in this picture?

#### NEW MEMBER TO JOIN THE O'AHU CULTURAL REOSURCES TEAM:

Jill Sommer is originally from Chicago. She received an Associates Degree in Wildlife Science and then moved to the Big Island to earn a Bachelors' degree in Marine Science. Jill found herself involved in many projects with the Pacific Tsunami Museum in Hilo where she eventually was hired as the Curator & Archivist. After six years in the museum arena, Jill moved to



Jill Sommer, Army's new Museum Technician Intern



O'ahu where she is currently a Graduate Student in Museum Studies at the University of Hawai'i Mānoa. Jill joins the Cultural Resources Program (CRP) as a Museum Technician Intern. Jill will be conducting an inventory of all archaeological collections in order to assist the CRP in developing a long range Preservation Plan.

#### **PŌHAKULOA NATURAL RESOURCE PROGRAM GETS FIVE NEW EMPLOYEES:**

Sarah Knox is originally from Wisconsin. She attended the University of Wisconsin, Madison where she received a degree in Wildlife Ecology. Since moving to the Big Island, Sarah has had the opportunity to work with US Geological Survey (USGS) on a native forest bird study on Mauna Loa and has also spent several seasons in Hawai'i Volcanoes National Park working on the Hawai'i hawksbill sea turtle monitoring project. Aloha Sarah!

Erin Foley is from Dayton, Ohio. She completed her Bachelor of Science degree in Anthropology at the College of Charleston, South Carolina, and her Master of Science degree in Botany at the University of Wyoming, Laramie. Prior to working for CEMML, she was at the National Tropical Botanical Garden on Kaua'i. Erin is very excited to have the opportunity to work with the unique flora and fauna at Pōhakuloa. Welcome Erin!



Sarah Knox, Erin Foley, Tiana Sudduth, Jennifer Randall, and Nikhil Narahari

Tiana Maile Sudduth was born in Kealahou, Hawaii. She was raised in Kailua-Kona, and graduated from Konawaena High School. She

received a Bachelor's degree in Environmental Studies in December of 2000 from the University of Hawaii at Manoa. After taking a few years off to gain work experience, Tiana enrolled in the graduate program at UH Manoa. She received a Master's degree in Natural Resources and Environmental Management in August of 2005. Tiana moved back to the Big Island in May of 2006, and joined the biology team of the PTA Environmental Department on July 5, 2006. Aloha Tiana!

Jennifer Randall studied Natural Science Technology in Quebec, Canada and came to the Big Island for an internship for USGS-Biological Resources Division in Hawaii Volcanoes National Park in 1997. She spent a year as an intern on various projects in the Park learning about avian malaria and the unique ecology of Hawai'i. She later worked on the Big Island Invasive Species Crew, returned to the Park as an Entomological Technician, and now finds herself at PTA. Welcome Jennifer!

Nikhil Narahari was recently hired as the Monitoring Specialist with PTA-Environmental. Prior to this, he was working as a Research Coordinator in the Department of Plant Biology at North Carolina State University. His work there primarily involved the development and implementation of techniques and instrumentation to facilitate the assessment of plant structure, function, and health. Other research interests include determining the role that physiological ecology plays in the distribution of rare and endangered plants, particularly in regard to competition for limiting resources. Nikhil has a Master's degree from the University of Georgia's Warnell School of Forest Resources and a Bachelor's degree from the Ohio State University. Aloha Nikhil!

**INTRODUCING TWO NEW MEMBERS OF THE O'AHU NATURAL RESOURCE STAFF:** Albert Agliam joined our team in May as our new fence crew supervisor. Al lives on Molokai and commutes to work on Oahu every week. In addition to fencing on Molokai, Al has built over 50 miles of fence in the Hawaii Volcanoes National Park. He also has experience fighting forest fires on the Big Island where he had the opportunity to work with a hotshot crew. He is an experienced sawyer and can wield a large chainsaw with skill and ease. Al has hit the ground fencing and has already completed three



fences in the Kahuku Training Area, and is currently working on several more. His extensive experience and innovative techniques make him a valuable asset to our program. Aloha Albert!



Albert Agliam, Fencing Crew Supervisor

Larry Abbot also joined our team in May. He is originally from Pennsylvania, and has a wide variety of work experience. He obtained a BS in Biology from the University of Pittsburg at Johnstown. Larry moved to Hawaii in 1989 and went to work at the Oceanic Institute as an aquaculturalist, farming shrimp. He also worked at Kapiolani Community College as a lab supervisor and Hazardous Materials officer. He then pursued his passion for conservation and went to work at the Kawainui marsh, and later helped to facilitate the project stewardship program with the Nature Conservancy. Larry has a good attention to detail and is passionate about protecting Hawaii's unique natural resources. Aloha Larry!



Larry Abbot, Natural Resource Technician

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